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LATE NEWS

The National Energy Strategy, finally released on Feb. 20, focuses on energy supply—supporting nuclear power, offshore drilling, alternate fuels, and market initiatives to increase competition and promote efficiency. It would boost renewables, but add no energy taxes. A Feb. 5 Senate plan also would open now-protected Arctic areas, but use revenue for conservation/R&D. Debate intensifies.

Mihama's mishap—level 3 on Japan's scale of eight—led to change in Japanese nuclear guidelines, now requiring immediate shutdown for abnormal radiation hikes of 20% or more (like Mihama). U.S. plant specifications already call for shutdown in such a case. One tube failed at Mihama and 20 tons of water leaked to the secondary. See also April *EL&P*.

50-minute delay reported in Japan nuclear accident

Emergency cooling, small radiation escape; valve sticks; another industry PR problem?

Mark T. Hoske
News Editor

WASHINGTON—The Kansai Electric Power Co.'s 500-MW Mihama Unit 2 underwent emergency core cooling (ECC) on Feb. 9, 50 minutes after initial signs of a malfunction.

It was Japan's first ECC. After ECC started, a power-operated relief valve stuck closed. An auxiliary system operated, however. The malfunction is under investigation. Japanese policy changes resulted (see Late News).

The incident caused no injuries, but released a small amount of radiation (0.134 curies), about 8 percent of annual plant emissions allowed.

The primary cause of the mishap at the 19-year-old pressurized-water reactor was thought to be fractures in primary steam tubes. Operators did a 40-minute radiochemical test on the secondary side, as plant procedures required, to verify the leak shown by a monitor. If the plant had been shut down immediately, emergency cooling might have been avoided.

The danger now is political for Japan's nuclear program, which has been slated to supply 36 percent of the country's electricity by '95, up from about 25.5 percent in '90, to cut imported-oil dependence. Japan operates 41 nuclear plants; 10 are under construction. Also, the world nuclear industry has a public-relations challenge. Despite an impressive safety record, two far worse accidents—Three Mile Island in '79, and Chernobyl in '86—have slowed some nuclear plant construction.

Final details are pending the investigation, but the sequence of events, as confirmed by Kansai Electric's Washington office, was as follows: Primary, radioactive water leaked into the secondary water system, which drives the turbines. One gauge showed the radiation increase; operators analyzed secondary side water to verify the leak. Radiation levels rose; the leak was verified; operators moved to shut down the plant 48 minutes after initial detection. Core water pressure fell; temperature rose, causing automatic reactor shutdown and core flooding 2 minutes later.

Japan's Mitsubishi Heavy Industries built the plant, based on a Westinghouse Corp. design. A Westinghouse spokesman said preliminary data showed "the plant response was well within the design basis for this event."

NES funds climb in '92 U.S. budget

WASHINGTON—The administration's 1992 fiscal year budget includes increases for programs related to the National Energy Strategy, huge hikes to administer Clean Air Act amendments, and expansion of programs related to global climate change.

DOE fossil R&D funding falls. Nuclear Regulatory Commission user fees would increase to 100 percent from

Continued on page 7

Possible child-cancer link to appliance use is found

PALO ALTO, CA--Preliminary data from an EMF/cancer study sponsored by the Electric Power Research Institute shows:

- Considerable support for a relationship between children's use of electrical appliance and leukemia risk.
- Some support for a relationship between household wiring configuration and leukemia risk.
- "Little support for the relationship between measured magnetic field exposure and leukemia risk.
- No support for a relationship between measured electric field exposure and leukemia risk."

A statement from the Electric Power Research Institute said, "EPRI views these findings as important, but the lack of a clear pattern of association with different measures of exposure requires further research."

An *EL&P* special report on EMF issues starts on page 8.

"The reason(s) why wiring configuration correlates with leukemia risk better than measured exposure are not clear," according to a statement from John Peters, University of Southern California, who conducted the study.

USC investigators have decided that full public discussion of the results should await publication of their paper in peer-reviewed literature. Findings here are preliminary.

The results may be biased, researchers stated, because results rely in-part on parents' recall.

The statement continued, "It is also not clear whether short-term, very high exposure of children to magnetic (or electric) fields from electric appliances are responsible for the observed risk or whether associated exposures are responsible. These latter two issues de-

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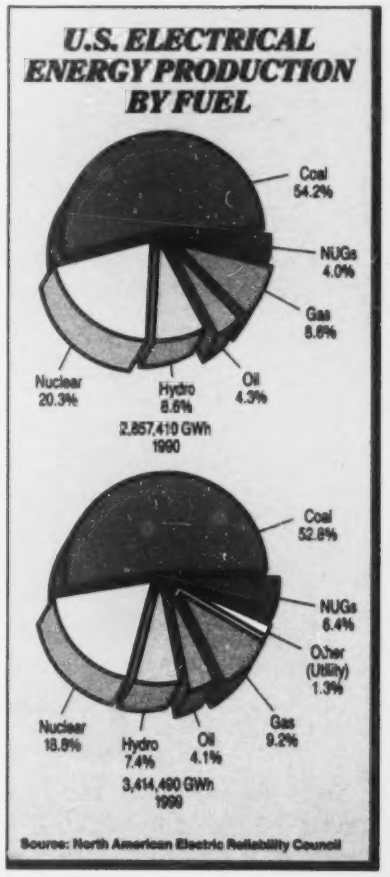
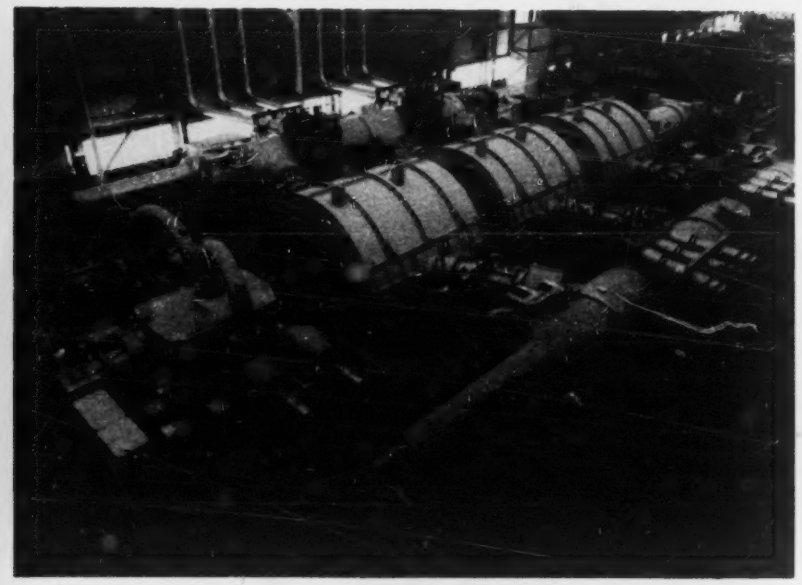


Ontario Hydro starts nuclear unit



Turbine rooms at Darlington Nuclear Generating Station still need work as the utility prepares units 3 and 4 for operation in 1992-93. Unit 1 began operation recently, but Unit 2 was halted. See story p.3.

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News Briefs

JILL MINNER, Special Projects Editor

Idaho Power will not push for Kanaka license

Idaho Power said it will not ask the Federal Energy Regulatory Commission to reconsider its decision to reject the utility's license application for a 17-MW hydroelectric project at Kanaka Rapids on the Snake River.

"The high cost of the project and environmental concerns led the company's senior management to decide against pressing the issue at this time," explained Jan Packwood, vice president of power supply for Idaho Power.

The utility said it submitted its application after L.B. Industries of Boise applied to FERC for a preliminary permit to build a hydroelectric facility at Kanaka Rapids. "We felt compelled by the competitive situation and the need to evaluate new resources for our growing number of customers to submit an application that we knew might face difficulty," stated Packwood.

According to FERC, the utility's application was rejected because it was deficient. The commission said Idaho Power did not follow the normal process nor perform the required studies and did not properly inform state and federal agencies of its intentions.

Foreign regulators invited to join NARUC

The National Association of Regulatory Utility Commissioners said it has adopted a resolution inviting foreign agencies engaged in the regulation of public utilities and carriers to join NARUC as associate members. The resolution, sponsored by Patricia M. Worthy, was adopted at NARUC's 102nd annual convention in Orlando, FL.

Personnel briefs

E.R."Dick" Brooks has been appointed chairman and chief executive officer of **Central and South West Corp.** Brooks, who will continue to serve as president of the company, succeeds Merle L. Borchelt who retired February 1.

E.R."Dick" Brooks

Southwestern Public Service Co. President and CEO Bill D. Helton has been named chairman of the board. He replaces W.R. "Bill" Esler who retired March 1.

Illinois Commerce Commission Deputy Executive Director Madelon A. Kuchera was chosen to serve as acting executive director until the commission fills the position.

Robert O. Bigelow, vice president of **New England Electric System**, was elected chairman of the **New England Power Pool** (NEPOOL) Executive Committee. George W. Edwards Jr., chairman and CEO of **The United Illuminating Co.**, was named chairman of NEPOOL's management committee.

The **American Society of Mechanical Engineers** has appointed Nathan H. Hurt Jr. as president. He will take office in June 1991.

J.E."Jack" Katlic, senior vice president at **American Electric Power Service Corp.**, succeeds the retiring Wayne T. Ewing as chairman of the **National Coal Association**.

Western Union service aids utility customers paying bills in person

For utility customers that want to pay their bills in person, Western Union Financial Services Inc. now offers an electronic bill paying service in many parts of the country. The Easy Pay service enables consumers to pay their bills in cash at supermarkets and other convenient locations.

According to Western Union, a terminal in each agent location processes payments and issues customer receipts. The receipt has a confirmation code that late-payers can immediately call into their utilities to prevent cut-off in service for non-payment. The funds are transferred electronically by Western Union to the utilities' collection accounts.

WE reorganizes to improve customer service

Wisconsin Electric Power Co.'s new customer operations department will help improve customer service, according to the utility. "We reviewed our field operations and customer relations to find ways to be more responsive and, at the same time, develop a streamlined, more efficient organization," explained WE Chairman and CEO Richard A. Abdoo. The new department, which replaces WE's division operations department, is made up of seven regions. Each region has its own managers for sales, service, engineering and operations, according to WE.

Residential electricity cost more in '89/'90 winter: NARUC survey

Twelve Most Expensive Companies

Company Name	State	Avg. Cost Cents/kWh	Winter 1989-90 National Rank
Long Island Lighting Co.	New York	$0.143	1
Nantucket Electric Company	Massachusetts	$0.142	2
Kauai Electric Co.	Hawaii	$0.141	3
Philadelphia Electric Co.	Pennsylvania	$0.135	4
Consolidated Edison Co. of N.Y.	New York	$0.134	5
Hawaii Electric Light Co.	Hawaii	$0.125	6
Orange & Rockland Utilities, Inc.	New York	$0.123	7
Commonwealth Electric Co.	Massachusetts	$0.120	8
Maui Electric Co.	Hawaii	$0.119	9
Duquesne Light Co.	Pennsylvania	$0.117	10
Toledo Edison	Ohio	$0.116	11
Ohio Edison	Ohio	$0.114	12

Twelve Least Expensive Companies

Company Name	State	Avg. Cost Cents/kWh	Winter 1989-90 National Rank
Washington Water Power Co.	Idaho	$0.042	187
Washington Water Power Co.	Washington	$0.043	186
Pacific Power & Light Company	Washington	$0.043	185
Idaho Power Co.	Idaho	$0.047	184
Idaho Power Co.	Oregon	$0.047	183
Portland General Elec. Co.	Oregon	$0.049	182
Potomac Electric Power Co.	Dist. of Col.	$0.049	181
Kentucky Utilities Co.	Kentucky	$0.051	180
Puget Sound Power & Light Co.	Washington	$0.053	179
Minnesota Power & Light Co.	Minnesota	$0.053	178
Nevada Power	Nevada	$0.053	177
Kingsport Power Company	Tennessee	$0.054	176

Source: National Association of Regulatory Utility Commissioners

Residential customers' electric bills last winter cost an average of 8.3 cents per kWh, up from the previous winter's average of 8.07 cents per kWh, according to the National Association of Regulatory Utility Commissioners.

In its nationwide survey of 1989-90 residential winter electric bills, NARUC reports that Washington Water Power Co. customers in Lewiston, ID pay the least for their winter electricity—approximately 4.2 cents per kWh. Long Island Lighting Co. customers in Long Beach, NY are in the most expensive territory, paying 14.3 cents per kWh, according to the association (see tables).

In a comparison of regions, the survey found that the Northeast and Pacific regions were the most expensive, while the Northwest and Rocky Mountain regions were least expensive. A total of 187 service territories were surveyed for December, January and February, covering four energy consumption levels—250, 500, 750 and 1000 kWh.

A copy of the 216-page survey may be obtained for $20 from NARUC, P.O. Box 684, Washington, DC 20044.

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State outdoor lighting contest entries sought

Entries are now being taken for Florida's annual outdoor lighting competition, Night Beautiful, which recognizes the creative use of energy efficient outdoor lighting. Entries are judged on technical achievement, enhancement of architectural lines, energy efficiency and impact on the nighttime environment.

Sponsors of the statewide competition include: Florida Power Corp., Florida Power & Light Co., Orlando Utilities Commission, Tampa Electric Co. and the Illuminating Engineering Society. Also sponsoring the event are General Electric Lighting Systems, Sylvania, the Florida Department of Commerce and GTE.

The deadline for entries is March 29, 1991. For more information contact Beth Walters at EventMakers Corp. (813) 223-4141.

Utilities fined by NRC

The U.S. Nuclear Regulatory Commission recently proposed the following fines:

Southern California Edison Co.

A $150,000 fine for alleged violations of NRC requirements involving the operability of safety-related systems at Units 2 and 3 of the San Onofre Nuclear Generating Station. On two separate occasions, valves in standby safety systems were temporarily misaligned, according to the utility.

Tennessee Valley Authority

A $30,000 fine for failure to comply with overtime requirements and for inadequate management control of overtime work during the last refueling outage at Unit 2 of the Sequoyah nuclear power plant.

Can customers be forced to pay for charity, good works?

Am I my brother's keeper? Must I pay more so someone else can pay less? Can my utility make me pay for programs to help it attract business? These are just a few of the questions that litigation ultimately may resolve for Illinois residents. It began as a telephone issue, but its implications are far broader. If the decision stands further review, utilities in other states could face problems, too.

The initial legal issue is a simple one. The Illinois Appellate Court already has ruled, in *Shortino vs. Illinois Bell Telephone Co.*, that the utility cannot charge its *billed* customers in Chicago to make up for a city message tax that it does not collect from pay-phone customers. It says one group of customers cannot be made to pay the tax that should have been paid by another group.

The decision is being extended. Already, Illinois phone customers are up in arms over an extra 15 cents per month in charges to pay for phone service to the poor.

Residential and commercial customers of Illinois Power Co. pay higher rates to make up for economic development allowances and incentive rates granted to industrial customers to relocate to or remain in IP's territory instead of moving to some other utility area where electric rates are lower.

Commonwealth Edison Co. collects a premium from customers outside the city of Chicago to pay for its Chicago franchise tax. Illinois Bell does the same. CECo also has requested it be allowed to include the cost of its $21-million annual economic development program in residential and small business rates.

For years all Illinois utilities have been major contributors of funds, personnel and services to local and regional charities, educational and cultural activities. They have tried to be good corporate citizens, using shareholder funds for worthwhile activities. They have sought to make customers partners in support of such causes through rate adjustments, a practice endorsed by their state commission. The Shortino ruling could end many of these programs.

For some unknown reason, consumer advocates see electric and other utilities as totally public entities. While they would not criticize, much less try to stop, charitable contributions by supermarket chains, petroleum companies or department stores—knowing well that customers pay for such costs in products and services—they gleefully challenge utilities providing similar support.

In their efforts to protect utility customers, consumer advocate groups chance the possibility of penalizing many of its most needy members. They would throw the baby out with the bath water, so to speak.

At issue is a matter of principle. It is also a matter of money, and what's best for the common good. It would be a shame if consumer advocates contribute to the detriment of the very people they profess to protect, but it could happen.

Birthday of an old friend

Reddy Kilowatt, longtime symbol of service and reliability for the investor-owned electric utility industry, is celebrating a milestone birthday. Hard to believe, but the little guy is now 65...and still going strong.

Reddy came to life in 1926, the product of the imagination of Ashton B. Collins, a commercial manager for Alabama Power Co., looking for a way to symbolize the many things that electricity could do. In his youth, Reddy helped utility companies sell appliances and build load. As he moved into early adulthood, he helped promote electrical safety, educate children and promote energy awareness.

Now, at an age when many of us are looking forward to retirement and the rewards of a productive lifetime, Reddy is busier than ever, still representing electric utility companies with its customers and with young people. He's helping find electrical solutions to environmental problems, promoting conservation and use of energy efficient appliances and equipment. In schools today, he's proudly serving as mascot for the "Just Say No to Drugs" campaign. Just like the energy he personifies, Reddy continues to seek new ways to serve humanity, to help make the world a better place in which to live. We should all do so well!

Robert A. Lincicome, Editor-in-Chief

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Update: Utilities report projects to comply with clean-air rules

Utilities are beginning to announce compliance strategies for meeting the acid rain section of the Clean Air Act amendments.

The 110 plants named in the legislation—representing 89,545 MW of power production capacity—must comply with restrictions in Title IV by Jan. 1, 1995, unless they qualify for an extension. Other plants also may require new controls, depending on output during the baseline years of the new law.

Of the 110 plants, 11 (less than 4 percent of generating capacity) currently use natural gas as an alternate fuel, according to "Natural Gas Trends, 1991," by Arthur Andersen and Cambridge Energy Research Associates. The report suggests that many of the targeted plants could meet new standards by co-firing natural gas with coal.

Utilities' choices of pollution-control solutions depend on many factors including plant age, location, capacity, fuel purchase/transportation contracts, and a variety of utility strategic issues.

Atlantic Energy

Atlantic City Electric Co.'s wholly-owned B.L. England Station and its jointly owned Conemaught Generating Station in Pennsylvania have been specifically named in the legislation for sulfur dioxide reductions by 1995. Additional compliance measures will be needed for the 2000 deadline.

The company said preliminary revenue requirements could be increased by less than 5 percent to comply ($36.2 million, based on operating revenue for 12 months ending November 1990 of $723.9 million). ACE would seek to recover the costs through future regulatory filings.

Potomac Edison

Potomac Edison, and parent company Allegheny Power System, developed a preliminary plan subject to revision and approvals. The plan includes retrofitting two power stations with flue gas desulfurization systems by 2000 for about $450 million. Fuel switching and burning lower sulfur coals is also being investigated.

United Engineers and Constructors, John T. Boyd Co. and Stone & Webster Engineering Corp. are providing studies, engineering and design services for the scrubber installation.

Three 640-MW units at the Allegheny Power's Harrison Power Station, near Shinnston, WV, would need the scrubbers to meet the 1995 Phase I deadline. Compliance costs would be about $800 million; Potomac Edison's share would be about $250 million.

Scrubbers or fuel switching or a combination are being considered for Hatfield's Ferry Power Station near Masontown, PA, and other power stations. This Phase II work (deadline 2000) would cost about $950 million for Allegheny Power, including $190 million for Potomac Edison.

Other efforts

Other utilities' efforts include:

- Basin Electric Power Cooperative, Bismarck, ND, established a taskforce working on a stack emissions monitoring system to meet mandatory requirements for continuous surveillance.

Laramie River Station Unit 3, at Wheatland, WY, is being used for a prototype installation for 100 percent availability and accountability by the end of 1994.

- Commonwealth Edison Co. is still studying alternatives for Kincaid Units 1 and 2, which burn high-sulfur Illinois coal. The $4.95-billion, 1991-95 construction program contains no expenditures for clean-air compliance.
- Montana Power Co. reports no major impacts. The Corette Plant, at Billings, will meet new standards through careful fuel blending. Meeting nitrogen oxide emissions in 1995 will require minor modifications on three plants at an estimated total cost of $10-20 million, placing Montana Power's additional costs for compliance among the lowest in the nation, the company said.
- Potomac Electric Power Co., in a Jan. 24 financial statement, listed Clean Air Act expenditures in millions of dollars at 10, 110, 60, and 10, for the years 1992-95. In 1993, that represents 28 percent of total company construction expenditures in 1993, but only 14.5 percent from 1992-95. The amounts exclude AFUDC.
- In part of a Jan. 29 statement, United Illuminating said "UI expects to be in a position to sell Clean Air Act 'allowances,'" citing a diversified fuel mix and desire to "compete aggressively for wholesale sales."

Targeted plants, Clean Air 1990

State	Number of Targeted Plants	Generation Capacity
Alabama	2	3,363
Florida	2	2,771
Georgia	5	8,444
Iowa	6	977
Illinois	8	6,002
Indiana	15	11,275
Kansas	1	158
Kentucky	10	4,649
Maryland	3	2,390
Michigan	1	650
Minnesota	1	163
Missouri	8	6,547
Mississippi	1	780
New Hampshire	1	489
New Jersey	1	299
New York	5	2,408
Ohio	15	14,131
Pennsylvania	9	7,675
Tennessee	4	6,331
Wisconsin	6	2,740
West Virginia	6	7,363
TOTAL TARGETED CAPACITY		89,545 MW

Source: Arthur Andersen, Cambridge Energy Research Associates

B&W acquires facility for boilers

BARBERTON, OH—Babcock & Wilcox agreed to purchase a facility in Little Rock, AK, to produce steam-injection boilers, heat-recovery steam generators, package boilers and boiler replacement components. The $4-million price included about 187,000 ft² of building space, overhead cranes, office equipment and site services.

B&W plans to invest another $6 million in the business, which will be operated by a separately incorporated subsidiary called Babcock & Wilcox-ST Co. Boiler technology from B&W and certain technologies purchased from Struthers Thermo-Flood will be used.

The facility, owned by ARKLA Inc., was built in 1982 to produce large gas compressors, but was closed in 1987.

Initially 150 will be employed, with up to 350 within two years in engineering, manufacturing, marketing and project management. B&W Power Generation Group is located in Barberton, OH, with U.S. manufacturing plants in Paris, TX, and West Point, MS.

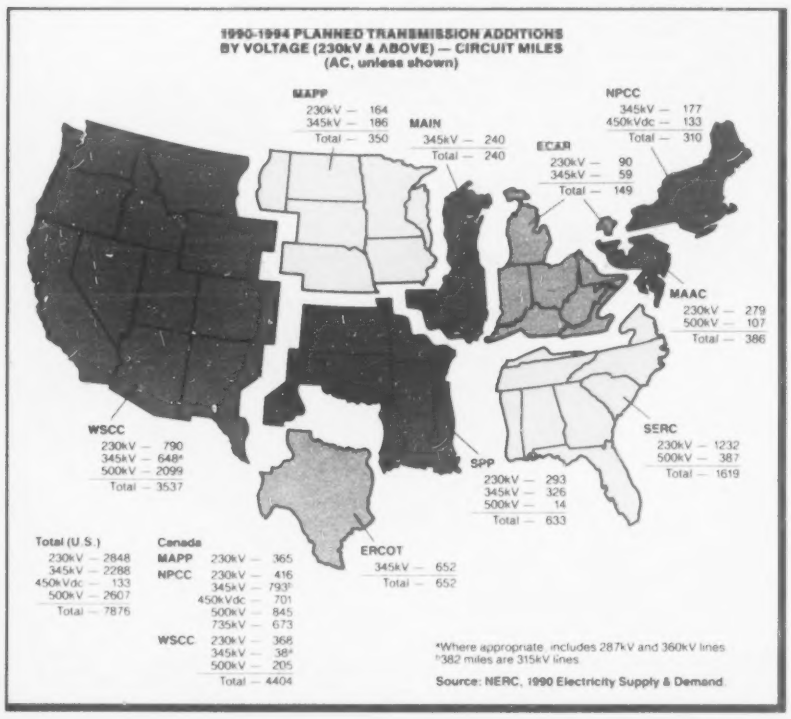
B&W is a major operating unit of McDermott International Inc., a leading worldwide energy services firm.

Southwest faces highest transmission growth in 90s

WASHINGTON—U.S. transmission additions are expected to total 13,353 circuit miles over the 1990-99 period, a 9.1-percent gain, for a total of 159,950 circuit miles.

Canadian projects will add 9366 circuit miles, or 23.5-percent, to the high voltage transmission system, totalling 159,950 miles at the end of the period.

These figures are according to the report, *1990 Electricity Supply and Demand*, by the North American Electric Reliability Council.



Most U.S. voltage additions will be 230 kV, as was stated in the 1989, and 1988 predictions. In Canada, the predominant additions will be of 500-kV lines, a change from previous NERC forecasts.

Western Systems

The U.S. NERC region with largest gain in circuit miles 1990-94 is Western Systems Coordinating Council with 3537 (see map). That's more than double the second-place region, Southeastern Electric Reliability Council, with 1619 circuit miles planned.

During the period '95-99, WSCC also planned the most additions, with 2168, to SERC's 1038 circuit miles. Total U.S. additions '95-99 will be 5477; Canadian additions will be 4962, according to the report.

Staff recommends that FERC approve 1500-MW storage project

WASHINGTON—The staff of the Federal Energy Regulatory Commission has recommended license approval for the proposed 1500-MW Summit pumped storage project to be built near Akron, OH.

The recommendation was included in the final Environmental Impact Statement for the project, released by FERC in mid-January.

The project would be developed, constructed and operated by Consolidated Hydro Inc., a Greenwich(CT)-based independent power producer, and its affiliates. If licensed as expected, the project would be the first independently-sponsored pumped-storage development to receive FERC approval. FERC's ruling is expected by mid-year, with construction planned to run from 1992 through 1998.

The developer is negotiating with Ohio Edison for sale of the plant's output, but no agreements have been reached to-date.

Another project is launched

Consolidated Hydro also was notified in early February that FERC will consider its application to build a 600-MW pumped-storage facility, the River Mountain project, in Arkansas. The plant, if approved by FERC, will be located near Russellville, about 80 miles Northwest of Little Rock. It is slated for operation in 1999.

Underground lower reservoir

The Summit project would use an inactive underground limestone mine as its lower reservoir and would construct a 195-acre surface reservoir in an area now under farm cultivation. The system would be self-contained and would not draw on existing bodies of water or streams. Initial fill of the upper reservoir, and makeup water to replace that lost through evaporation, would be through surface run-off and purchase from a nearby municipal water system.

Six 250-MW pump-turbines and motor-generators would be installed in the underground powerhouse, to be located about 2400 ft below the surface.

Summit Energy Storage Inc., an affiliate of Consolidated Hydro Inc., will develop the project while another affiliate, Consolidated Pumped Storage Inc. will be responsible for management of the Summit project. Consolidated Hydro is recognized as the largest independent owner-operator of hydroelectric facilities in the U.S.

Companies agree on joint technology

FOXBORO, MA—Sun Microsystems and The Foxboro Co., a Siebe Co., signed a joint technology and business agreement, allowing Foxboro to incorporate SPARC and other advanced Sun computer technologies in Foxboro's I/A Series industrial process management and control systems.

Foxboro also will market an integrated product offering to satisfy the requirements of their industrial automation customers.

The first three products, available February '91, are application interfaces to give engineers, managers and other supervisory network users direct access to plant production information. The products are the Foxboro I/A Series Application Interface Software, the I/A Series Open Application Platform, and the I/A Series Open Information Server.

ELECTRICITY

Continuing to supply reliable electricity while keeping costs down has become a major challenge for the utility industry. Forecasts project further increases in peak demand. That's why there is renewed emphasis on energy management, whether supply side or demand side. There is no one solution.

We're RELM Demand Side Management, formerly Regency Load Management. For the past 12 years, we've worked side-by-side as partners with a number of leading utility companies, designing and supplying their VHF radio load management systems and equipment. Our switches are compatible with most codes and systems in use today. Our systems are customized for optimum flexibility and future expandability. Both have proven to be dependable and cost effective for large and small utility companies.

We've kept a pretty low profile over the past 12 years, quietly building a successful, solid reputation based on quality products, service and delivery. If you'd like to know more about how RELM Demand Side Management can work for you, call or write Bob Pinkley, Director.

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from page 8

EMF concerns...

with distance.

Florida and New York

Two states, Florida and New York, have adopted a 200 mG exposure maximum at the edge of power-line rights-of-way (ROW). That level would pose little problems for utilities, but some groups are pressing for even lower limits. One study calculated that to bring power line fields down to a maximum of 100 mG at the edge of the ROW would cost $5 billion in Florida alone.

California starts study

The California Public Utility Commission opened an investigation of EMF health effects in three studies, in conjuction with the state Department of Health Services, to be completed in 1992-93. In a mid-January statement the PUC said it would, "determine whether it needs to change its existing rules, regulations, and policies regarding the operation, design, construction or siting of electric utility power facilities or cellular radio/telephone facilities to protect public health and mitigate potential health effects.

New transmission lines cost $750,000 or more per mile to install. If utilities are forced to remove or reroute them because of EMF concerns, it would simply add to their already high cost. Despite the cost, some utilities now include EMF and the proximity to people in their siting and design considerations.

Some people perceive that putting transmission lines underground would solve the EMF problem, but the earth provides no shielding against magnetic fields and in some cases might even increase the level of exposure to EMF. If the configuration and design is planned properly, underground lines will reduce EMF emission, but the cost can be as high as five times or more that of an overhead line and it would present some other operating problems.

More research is needed. Meanwhile, some sources promote reasonable and economical mitigation measures to guard against possible liabilities.

DSM market expands; some voice concern

Mark T. Hoske
News Editor

As much as half of the $450 billion annual U.S. energy bill could be saved if current conservation and load management technologies were used to the optimum level, say some estimates.

These include efficiency advances regularly promoted in utility programs: lighting, space heating and cooling, insulation, water heating, ductwork and pipes, windows and appliances.

Efficiency programs are expected to play an increasingly significant role at utilities, as some implement integrated resource planning, in which demand-side management (DSM) projects can compete with, and/or augment supply projects. But even without aggressive DSM projects, naturally occurring efficiencies will continue to affect utility planning through mandated appliance efficiency standards, rising energy prices, and research and development activities.

Efficiency savings embedded in utility forecasts of electric energy consumption in the year 2000 will be about 325,000 GWh, or an 8.5-percent savings, according to an estimate by the Electric Power Research Institute. The savings varies by end-uses, and is as high as 37.1 percent for residential freezers and 28.7 percent for residential refrigerators, EPRI said.

Although industrial load management has been an option for many years, utilities and various vendors are upgrading and advancing the technologies available for interruptions linking radio, telephone and/or power-line carrier, and metering technologies to manage residential, commercial and industrial loads. Computer advances help control and moniter load interruptions and reconnections at more affordable costs.

Some technologies offer more efficient use of electricity for the same purpose. Others switch industrial or commercial processes to increase output, saving electricity or other energy. So-called "smart" automation technologies help customers use electricity more wisely.

The (all) Electric Smart House, near Atlanta—with touch-screen computer technology, programable switches, appliance management, and sensors—uses half the energy of houses its size. The Gas Research Institute has a similar house for research in Maryland.

Utilities also add to energy efficiency by switching to high-efficiency transformers and improving conductors to reduce line losses, topics regularly covered in *EL&P*.

More traditional conservation measures that include some behavior change, such as decreasing consumption, generally seem less welcomed by consumers.

Even amid the Mideast war, consumers seem reluctant to change energy habits. A poll by the Gallup Organization after the Persian Gulf crisis began in August, showed that 10-percent or less of the people surveyed took any energy saving measures, despite 73 percent indicating the U.S. energy situation was very serious.

Without suggesting any political arguments or policy positions (and there are many), it might be startling that more is spent for one day of the Persian Gulf war than is slated for energy efficency in the U.S. fiscal-year '91 budget.

Utilities recognize consumer reluctance when marketing DSM programs and are working on various efforts to improve. Some states' regulatory incentives also help boost participation in programs. Due in-part to regulatory prompting, California utilities are preparing sweeping efficiency plans.

"I think people recognize that demand-side management is something that's here to stay," indicated Patrice Ignelzi, executive director of the Association of Demand-Side Management Professionals.

"Utility management is finally buying into DSM, giving it clout, more on par with supply-side planning," Ignelzi said about the integration of supply and de-

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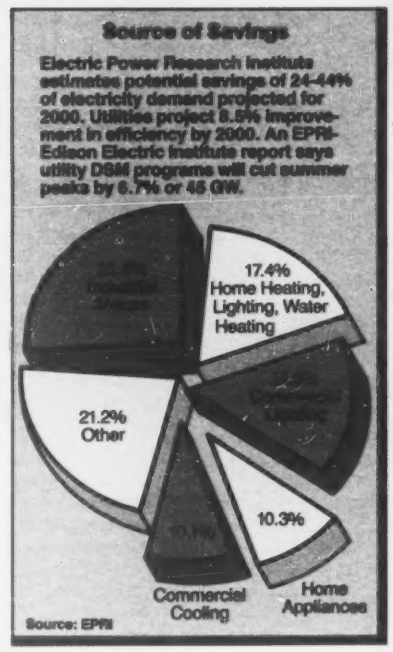
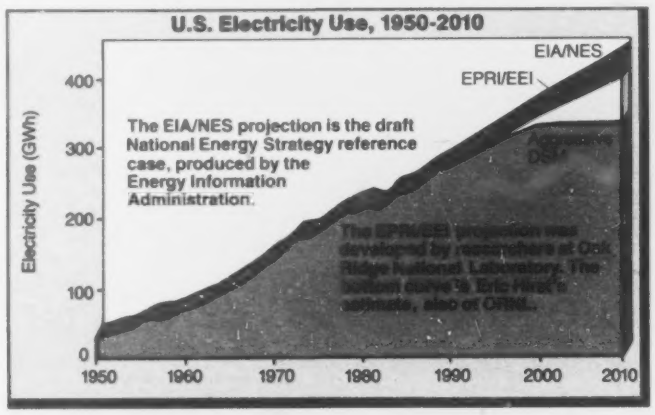
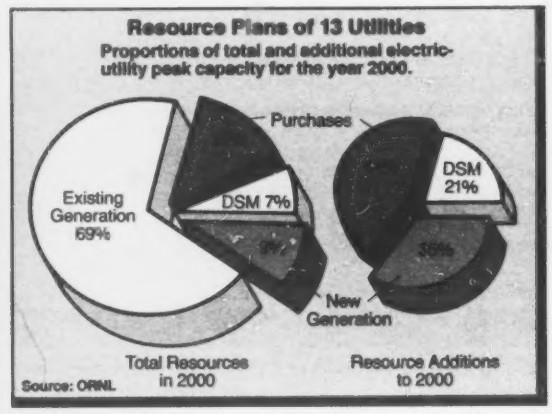

Source of Savings
Electric Power Research Institute estimates potential savings of 24-44% of electricity demand projected for 2000. Utilities project 8.5% improvement in efficiency by 2000. An EPRI-Edison Electric Institute report says utility DSM programs will cut summer peaks by 6.7% or 45 GW.
17.4% Home Heating, Lighting, Water Heating
21.2% Other
10.3%
Commercial Cooling
Home Appliances
Source: EPRI





Focus On Demand-Side Management

Meetings, groups, courses

DSM and the Global Environment, April 22-23, Hyatt Regency Crystal City, Arlington, VA, 8495, sponsored by 11 industry organizations. *Synergic Resources Corp. (215) 667-2160.* The groups include: Alliance to Save Energy, American Council for an Energy Efficient Economy, EEI, and EPRI.

1991 Lighting Efficiency Congress, a WORLDCON event, April 23-24, 1991, Disneyland Hotel & Convention Center, Anaheim, CA.

Lighting Efficiency Solutions, two-day seminars, Anaheim April 25-26, and Washington, DC, May 16-17. *Association of Energy Engineers, 4025 Pleasantdale Road, Ste. 420, Atlanta, GA, 30340; (404) 925-9633.* AEE was founded in 1977 as a professional non-profit society for energy engineers, managers, and others in the energy field. Has energy publications, seminars.

DSM Evaluation Training Seminar, May 1-3, Chicago, *EPRI,* (415) 855-2887.

Xenergy DSM Workshop, in conjuction with ADSMP, San Francisco, May 16-17. Three others planned in major U.S. cities. *Xenergy Inc., Executive Place V, 60 Mall Road, Burlington, MA 01803.*

5th National Demand-Side Management Conference, "Building on Experience," July 30-Aug. 1, Boston, by EPRI, DOE, EEI, Boston Edison, Synergic Resources Corp. *Contact Betsy Johnson, 5th National DSM Conference, 286 Congress St., Boston, MA, 02110; (617) 482-8228.*

The biannual National Energy Program Evaluation Conference, Aug. 21-23, Chicago, by Argonne National Laboratory, EPRI and others. *Contact Gail Ettinger, (708) 864-5651.*

8th Electric Utility Forecasting Symposium, Oct. 23-25, Baltimore, *EPRI.* (415) 855-2855.

Association of Demand Side Management Professionals (ADSMP) membership is open to any in the DSM field. Member services include an annual directory, a newsletter, discounts at ADSMP events, an electronic bulletin board, and other information. About 150 attended the first annual member meeting, in December. *ADSMP, P.O. Box 4658, Berkeley, CA 94704; (415) 528-5566.*

Master of Science in Lighting, and related courses, Rensselaer Polytechnic Institute School of Architecture, in association with the *Lighting Research Center, Troy, NY 12180, (518) 276-8716.*

Three variables dictate success of utility's load-control program

Robert S. Mason Jr., P.E.
President
Bayboro Consulting Group

A successful electric utility load-control program is dependent on many factors. But three variables generally must be present if such a program is to have any chance of success.

These are: 1. Customer acceptance 2. Hardware performance 3. Load reduction effectiveness. All three are implementation issues. A utility load control program is doomed unless all three can work simultaneously.

Realization of the importance of these factors is the result of experience compiled by Florida Power Corp., which is successfully operating the largest load management program of any electric utility in the United States. FPC currently has 300,000 of its 1-million customers, with about 600,000 user loads, on load management programs.

Florida Power's technology now is being marketed nationwide by subsidiary Bayboro Consulting Group Inc., and has been tested and perfected in the field over the past decade—from pilot to system.

After the first eight years of operation, the utility reports a cumulative total of only two percent of its load management customers cancelled their participation. Other utilities have been known to experience a 2 percent *annual* cancellation rate, or more.

G. Heber Weller, manager of load management and research for Florida Power, attributes his utility's low cancellation experience to customer satisfaction with the program. For one thing, he says, "customers like the dollar credits they get on their electric bills." At the same time, Florida Power gets a highly desirable reduction in load. "It's truly a win-win situation."

Florida Power's service territory includes 32 counties in northern and central Florida, in the heart of the fastest-growing big state in the nation.

"Despite the fact our territory is gaining population every day," Weller said load management programs have enabled the company "to achieve a reduction in load and thereby defer the need for some new plant construction."

He added that customer satisfaction is accomplished in a number of ways. "In the beginning," he said, "we tell customers to sign up for the whole program. If it works, fine. If not, they can take appliances off load control one at a time until they find their suitability range." He explained that customer service representatives explain the system very carefully, making certain that the customer fully understands what is involved.

Weller said Florida Power also is very

Continued on page 15

Utilities apply lighting advances, efficient motors in DSM programs

Demand-side efforts vary widely, from government investments, to utility programs, and association efforts.

A roundup of recent developments follows.

Lighting programs

Fluorescent bulbs save up to 75 percent of the energy of incandescent lamps and last up to 13 times longer, but they cost more.

Some utilities are working with lighting manufacturers to increase use of new, compact fluorescent lamps in residential markets.

Philips Lighting promotes lighting efficiency through its EARTHLIGHT programs. Philips EARTHLIGHT SL*18, provides the same light, 1100 lumens, as a 75-watt incandescent bulb, but uses 75 percent less energy. Suggested retail cost is $19.95, compared to about $1.19 for a 75-watt Philips incandescent bulb. For a variety of utility-sponsored programs, Philips negotiates price through bids.

Utilities have implemented various lighting programs, including donating lights to low-income housing customers, giveaway programs, and direct mail. Lloyd Chapman, of Philips said Green Mountain Power installed a free light with a water heater wrap; Northeast Utilities has given lights away; Philadelphia Electric Co. and San Diego Gas & Electric also have programs. Other utilities are investigating promotional efforts through retailers, Chapman added.

The EARTHLIGHT won the 1990 Discover Award for technological innovation in the environmental area. Philips Lighting is based in Somerset, NJ.

Four municipal utilities are involved in SMARTLIGHT leasing programs. A leasing program helps utilities with DSM goals by "renting" customers the bulbs for pennies a month. Customers reap energy savings at no capital cost. SMARTLIGHT is registered to Sylvania lighting. As previously reported, Taunton (Mass.) Municipal Light Plant's SMARTLIGHT program won the Energy Innovator Award from DOE and the American Public Power Association.

EPA promotes 'Green Lights'

The Environmental Protection Agency started the voluntary "Green Lights" program in mid-January to encourage the 1000 largest U.S. businesses to increase profits and decrease pollution with efficient lighting.

EPA said commonly available energy efficiency lighting could save 11 percent of all electricity used by U.S. businesses and, as a result, cut sulfur-dioxide emissions by 7 percent and reduce carbon-dioxide emissions by 5 percent.

Replacing lighting in all facilities with energy efficient lights cut the government agency's light bill by 57 percent, to 78,730 kWh/year, or $5,511.

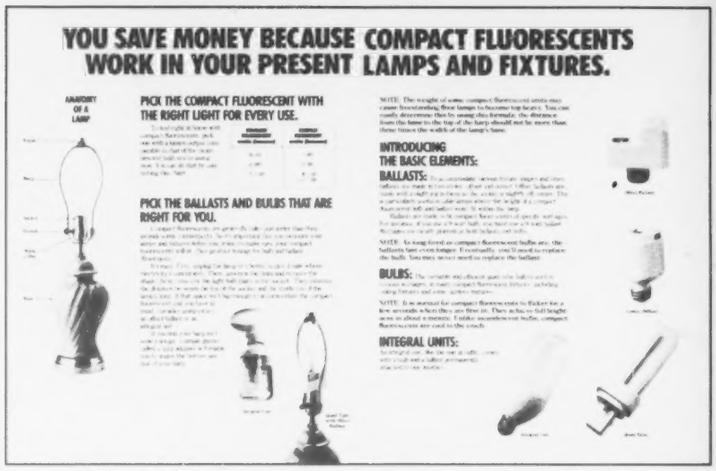
Like many utility programs, the EPA's "Green Lights" promotes compact fluorescent bulbs for incandescent fixtures, tubes with higher lumen output, more efficient electronic ballasts, rather than conventional ones, and more effective lighting design and use.

In a recent survey, the leading obstacle to selection of energy saving lamps is the higher initial price, according to 42 percent of respondents.

The Wagner Group, based in New York City, conducted the survey of 102 electrical contractors specializing in non-residential construction for GTE's Sylvania Lighting Division-U.S.

Other key findings were:

- 26 percent of electrical contractors said customers "seldom" request energy saving lamps.
- 27 percent said customers request them "some of the time."
- Facilities for which energy saving lights are frequently selected: Government facilities 72 percent, schools 70 percent, office buildings 61 percent, healthcare facilities 54 percent, manufacturing plants 50 percent, stores 47 percent, hotels 39 percent, and warehouses 34 percent.
- 49 percent said energy conservation is a serious issue today, with 80 percent expecting it to be serious issue 2000.


YOU SAVE MONEY BECAUSE COMPACT FLUORESCENTS WORK IN YOUR PRESENT LAMPS AND FIXTURES.
ANATOMY OF A LAMP
PICK THE COMPACT FLUORESCENT WITH THE RIGHT LIGHT FOR EVERY USE.
PICK THE BALLASTS AND BULBS THAT ARE RIGHT FOR YOU.
INTRODUCING THE BASIC ELEMENTS:
BALLASTS:
BULBS:
INTEGRAL UNITS:

Northeast Utilities' Connecticut Light and Power Co. offers customers discounts on 35 energy-efficient lighting products in its "SPECTRUM Lighting Catalog." Bulbs and ballasts normally selling for $9-$13 cost $4; similar bargins are available on other equipment. These pages explain lamp design.

High efficiency motors

As with lighting, lifetime energy savings can dwarf the higher initial costs of high-efficiency motors.

High efficiency motors can consume up to 15 percent less electricity than older counterparts, said Ken Cornelius of Siemens Energy & Automation, Industrial Motor division. In addition, high efficiency motors bring 3-4 percent efficiency gains over standard efficiency motors, making use practical even a few hours a day, said Cornelius.

Utilities are among the large industrial users that would benefit from more efficient motors, using large motors greater than 200 hp to drive industrial air compressors, pumps, fans and coal crushers. Some utilities have promoted use of efficient high-horsepower motors among large customers, and the use of smaller ones through manufacturers' appliances.

Smaller motors consume a larger percentage of total power than big motors in nearly all household and business applications, for air conditioning, compressors, fans, blowers, pumps, and other uses, he said.

In one example given by Siemens, a 25-hp, 1800-rpm, high-efficiency motor costs $770, 30 percent more than a standard motor. But the motor could save more than $7000 in lifetime costs with utility rates at 8¢/kWh.

Association survey

A survey by the Association of Demand Side Management Professionals describes about 85 U.S. utilities' DSM efforts.

The survey, compiled in the report "Tie Lines, Volume 1: A compendium of Utility DSM Programs," lists DSM programs in each of four markets (residential, commercial, industrial, agricultural), with type, end-use (lighting, heatpump, etc.), utility and contact information, and market segment (retrofit, new, or both).

The report, to be updated periodically, is to allow professionals in the industry to find help when developing new or modifying existing programs. It is available for members for $20 and nonmembers for $95 from ADSMP (p. 13).

Motors such as this one by Siemens Energy & Automation help large customers reduce load.

FOCUS
On Demand-Side Management

Survey: Load management projects even out

ROSEVILLE, CA—The number of load management projects (LM) appears to have leveled off among utilities, after doubling between 1986 and 1988.

Money spent on LM projects also is decreasing, with advances in technology. More small- to medium-sized utilities are establishing LM systems.

These findings are according to a survey of utility load management investments by CRS Inc. Preliminary results were presented at the International Symposium on Distribution Automation and Demand Side Management cosponsored by the Eureka Group and *Electric Light & Power*.

For the purposes of its survey, CRS narrowly defined load management within the larger catagory of demand-side management: LM projects remotely control load with on-off switches via a central computer. The study also covered distribution automation (see p. 24).

Comparable surveys showed 75 LM projects in 1986, 135 in 1988 and 128 in 1990. The dollar value of projects listed steadily declined from $132.3 million in 1986 to $90.17 million in 1988 to $68.22 million in 1990.

In the 30 months starting February 1991, utilities plan to spend $68.22 million on LM programs. A few large programs will account for the most spending.

Municipal utilities have the largest number of LM projects planned, 54, representing 39 percent of the total. Rural electric cooperatives, with 38 projects, intend to spend the most, $20.5 million, or 42.7 percent.

Investor-owned utilities account for 12, or only 14.5 percent, of the total number of projects covered in the survey, but account for 39.2 percent of the dollar investment, $18.9 million.

CRS noted that, from past surveys, an average of 58 percent of utilities finish projects within the scheduled calendar years. Most utilities spend within 10-20 percent of the planned amount.

In the study, the number of LM projects by utility size matched directly the sample size of each group.

The projects were valued as follows:

- 128 system projects, $68.22 million.
- 162 switch projects, valued at $79.16 million. (These could modify existing projects.)
- 105 communications projects, $11.23 million.
- 31 projects for consulting engineers, $860,000.

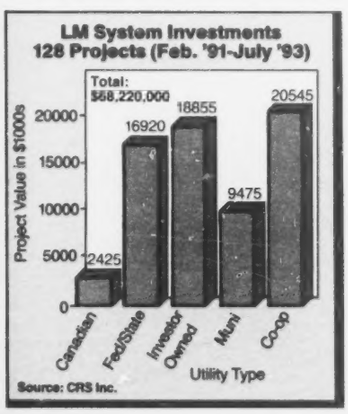
Study participants

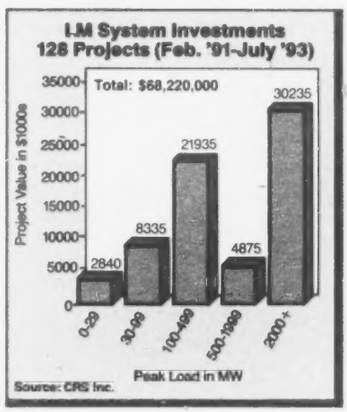
The study of 1043 utilities was conducted from October 1990 through January 1991. By peak load, the utilities were:

- 95, 2000+ MW; 8 LM system projects are planned.
- 106, 500-1999 MW; 11 projects.
- 316, 100-499 MW; 45 projects.
- 348, 30-99 MW; 46 projects.
- 178, under 30 MW; 18 projects.

By utility type, they were:

- 89, Canadian; 13 LM system projects are planned.
- 75, federal, state, district; 11 projects.
- 145, investor-owned; 12 projects.
- 338, municipal; 54 projects.
- 396, rural electric cooperatives; 38 projects.





For more information

CRS Inc. is a market research firm specializing in the study of control and data acquisition systems used in the electric utility industry.

For more information contact Gail Ossandon, CSR Inc., One Sierragate Plaza, Ste. 270-C, Roseville, CA, 95678; (916) 773-3344

from page 13

DSM market...

mand-side planning and the increasing level of commitment to DSM resources. DSM use has been more advanced in the Northeast and other areas with some short-run supply constraints, she pointed out, but added that "attention to it definitely is spreading."

The growth of ADSMP seems to reflect added growth in the industry, in-part, Ignelzi said, because people have made personal commitments/career decisions to DSM. The organization, started in December 1989, grew to 200 by January 1990, had 850 members in January '91, and expects more than 1200 by 1992.

Ignelzi pointed out that growth in DSM programs could be greater if the final version of the emerging National Energy Strategy (NES) placed as much emphasis on conservation and efficiency as indicated earlier in the process.

In the State of the Union Address on Jan. 29, President Bush affirmed plans to send to Congress "a comprehensive national energy stategy that calls for energy conservation and efficiency, [with] increased development and greater use of alternative fuels." Some sources indicate that free-market forces within the administration may prevail over efficiency mandates included in early Department of Energy NES drafts (*EL&P*, Feb., p.1). Ignelzi seemed to agree. "I very much get the impression that the Administration has been, and will continue to be, an obstacle to extensive efficiency incentives."

With or without strong incentives, Ignelzi suggested that market conditions would continue to advance DSM efforts.

In addition to some White House hesitation, the movement toward increased investments in DSM has other detractors. Some of these views suggest artificial regulatory or utility incentives counter free-market pricing incentives for conservation and efficiency.

The Electricity Consumers Resource Council (ELCON) said state utility regulators too often give DSM unfair advantage over supply-side sources. The Washington, DC-based group proposed limits, a "Demand Side Management Profile." These limits outline ELCON's view of DSM programs in least-cost planning efforts, and recommend procedures for identifying cost-effective DSM options, measuring actual resource value, and determining the level of financial incentives.

John Anderson, ELCON executive director, argued regulators must not require mandatory DSM programs—utilities should retain accountability and be subject to prudence and used and useful reviews.

Selected social costs, such as environmental externalities, should not be internalized. Actual costs, including environmental regulation compliance costs, should be used, Anderson said.

Prior to DSM programs, he said, utilities should set rates without subsidies, based on cost of service, to send appropriate price signals, including time-of-use, curtailable and interruptible rates. A resource plan should precede DSM investments; the most a utility should pay for a DSM resource is avoided cost minus the bill savings, he added.

from page 13

Load management...

careful to stress the quality of its customer service. "This program gives us an excellent opportunity to build good relations with our customers. When a customer calls with a problem, we are more than happy to show the customer exactly what we can do. Often, this is the first direct dealing the customer has ever had with the utility."

Load control equipment consists of the devices at the residence that receive the signal from the power company via some communications medium—radio, power-line carrier or telephone. A receiver does two things: it receives information over its communications medium to verify that it is working properly and it also receives information from the power company in order to turn house appliances off and on. In order to work properly, the device also must be wired into the home appliances correctly and it has to stay this way.

"You have to have a performance assurance system, which most often involves an on-site inspection program," Weller said. Bayboro Consulting Group is among companies offering such services.

Weller noted that Florida Power uses radio as its communications medium, utilizing 22 radio transmitters located throughout its service territory.

The third variable of a successful load-management system, load-reduction effectivesness, is determined on an aggregate average basis and involves an appliance strategy. "There are two kinds of appliance strategies," Weller said. "One is the kind where you 'shed' (turn load appliances off for long periods of time) and the other is the kind where you cycle them. Water heaters and pool heaters are in the first category and air-conditioners and heaters in the other."

Florida Power's load-control system allows the utility to achieve a peak winter load reduction in excess of 600 megawatts and a summer peak reduction of 300 MW. Deferred is the equivalent of 600 MW of peaking capacity.

In order to "fix" a deferred dollar value of the Florida Power system, the capital costs of peaking capacity first must be determined. Today, this is generally in the range of $400 per KW. Using this figure, the Florida Power system was able to defer about $240 million of capital investment (600 MW saved times $400 capital cost per MW.) This figure does not include the operating and maintenance costs of new peaking plants or the cost of the fuel.

Florida regulators allow utilities to recover the cost of load control from customers outside the rate base. Public service commissions in most states are becoming increasingly fond of load management and other energy conservation programs and in most cases encourage utilities to utilize them.

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WAYNE BEATY, Senior Editor—T/D

Utilities told to expand DA/DSM involvement

PALM SPRINGS, CA—Speakers at the first International Symposium on Distribution Automation and Demand Side Management suggested expanding utility involvement in those areas, forecasting a bright market for related companies if the right steps are taken.

Co-sponsored by *Electric Light & Power*, the symposium attracted more than 400 engineering managers from investor-owned, municipal, cooperatives, federal, state and international utilities.

The three-day meeting, organized by the San Francisco-based Eureka Group, addressed the emerging technologies involved in substation, distribution feeder, and customer automation, as well as demand side management issues.

Forty presentations from industry consultants, utility managers, and manufacturers covered a broad range of topics, from wide-area communications to new customer interface devices.

Representatives from 11 countries added an international flavor to the meeting. Ten percent of the delegates came from outside North America. The Mexican firm, Sensa Control Digital, demonstrated its line of DRTs, the first time a Mexican manufacturer of this type product has exhibited in the United States, according to Sensa founder Filipe Garcia.

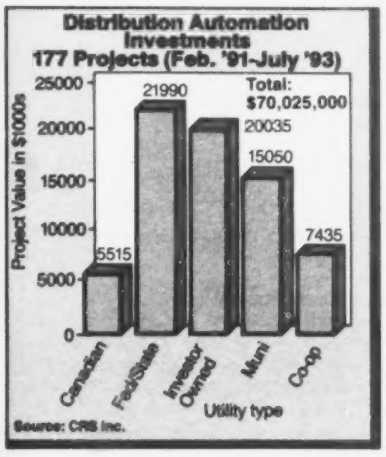
ABB Power Pty. Ltd., Australia described the progress achieved by utilities adopting its integrated distribution system automation products in the Asia Pacific region.

Over half of the utility attendance came from investor-owned companies. The second largest group came from municipals and regional PUDs, many from high population areas. This may signal wider adoption of distribution automation (DA) philosophy, from its traditional stronghold in sparsely populated territories with long distribution circuits to more urban bases.

Market projections for DA

The results of a new market study on planned purchases of systems and equipment for DA by North American utilities gave delegates an optimistic view of application potential and acceptance.

Gail Ossandon, general manager of CSR Inc., says the market for DA has continued to show a healthy growth in the last five years. From a mere 39 projects planned in the 1986 study, the number of planned projects has grown to 177 new system projects valued at $70 million for the 30 months starting in February 1991. This is a growth of



220 percent over four years and is occurring across all size and type market segments.

The study also identified:

- 45 RTU projects for $10.3 million.
- 97 communications projects valued at $11.5 million.
- 27 consulting engineering projects valued at $1.1 million.

Utilities with peak loads over 2000 MW will spend $35.9 million or 85.1 percent of all planned expenditures.

While the growth rate for DA projects may not be sustained in future years, it is clear that technology has driven market penetration to new levels that bode well for the near- and mid-term future of the industry.

The CRS Inc. study defines DA as real-time automation of feeders including reclosers, capacitors, regulators, or switches outside the substation and extending to the secondary side of the distribution transformer. (See also p. 14.

Communications systems

Various wide-area communications technologies were presented and discussed in a surprisingly congenial panel session. Michael Olson, vice president of engineering, Cellular Data Inc. Robert Landman, president, H&L Instruments Inc., a fiberoptics company and David Warkentien, western region manager, Microwave Data Systems Inc., all agreed in their advice—make the right choice for the proposed installation by considering terrain, data to be handled, applications to be supported, investment capital available, and maintenance skill level. Compare the pro's and con's of each competing technology to the requirements and then move ahead.

An impediment to progress recurring through symposium presentations was the need for standards and interoperability among equipment. Wade Malcolm, project leader, Electrical Systems Division, Electric Power Research Institute, gave a well-received update on the progress being made towards adoption of the utility communications architecture (UCA).

Malcolm pointed out that the electric utility industry's annual expenditures on telecommunications equipment is in the range of $5 billion—second only to the telecommunications industry itself. Utilities rank as the number one users of real-time data. He suggested that interoperable systems and the adoption of non-proprietary protocols would save the industry over $1 billion per year in interconnection and translation costs.

Allen Skopp, marketing manager, Valmet Automation Inc., Houston, TX, a SCADA system and RTU supplier, discussed the increasing need for intelligent communications between equipment which formerly just "hooked up." From Skopp's point of view, the distribution portion of the industry is moving unstoppably in the direction of closer coupling between the different devices which, cumulatively, comprise the distribution network. "The real equipment, the stuff you can't do without no matter what, is becoming more sophisticated. We're seeing more and more companies with which we must interface electronically, not only high-current equipment such as circuit breakers, reclosers, and sectionalizers, but with smaller microamp-size equipment as well."

Need for standards

Some strong voices, including John Redmon, manager of planning and system design at Public Service Electric & Gas Co., stressed the need for utilities to take the lead in ensuring progress towards compatible systems and products.

First, he suggested, insist on an open-systems philosophy when purchasing products or systems. Second, make a commitment to helping the standards adoption process by participating in industry meetings.

Linda Finley, director of engineering at Snohomish PUD, suggested the possibility of cost-sharing for utilities for which the financial burden is too great. For example, share travel costs between a small company employing a particularly strong contributor and a large organization which will benefit substantially from the adoption of standards, but which has no one in particular to send.

Customer service

Customer service was advocated at the outset of the meeting as a key to success. In her keynote address, Finley stressed the need for utilities to *calculate* the value of customer service and to recognize the importance of *customer-perceived value*. Finley said, "The meter is the utility gateway to the customer and much more can be gained through the meter than just monthly billing data."

For those utilities that need help in learning more about opportunities for DA/DSM issues, Finley pointed to the many trade organizations, trade magazines, and EPRI as sources of help, information, and educational material for utility engineering managers. She said existing technologies offer sufficient benefits to make innovative customer service programs cost justifiable.

Roger Levy, president of Levy Associates, also espoused a closer look at the benefits of better customer service. Having recently organized a two-day roundtable session, Levy shared the insights of several large industrial customers who participated in the discussions.

From the customers' viewpoint, the benefits of advanced metering technology, and the possibilities of synergistic DSM techniques were so great that the customers themselves would, in many cases, be willing to foot the bill if the utility had programs to offer.

In response to the question, "Is your utility customer-oriented?" a show of hands indicated most thought they were. Levy pointed out that most industrial customers didn't feel that way, but were eager try new methods for energy control and billing techniques that most utilities don't consider to be cost effective.

The 1992 symposium will be in Fort Lauderdale, FL, Jan. 13-16, and will have an expanded program of user case studies. Copies of the Proceedings of the first International Symposium on Distribution Automation and Demand Side Management are available from the Eureka Group, Ph. 415/647-9003.

Check PCB disposal service carefully

GOLDSBORO, NC—Since most utilities depend on commercial firms to decommission PCB-contaminated (polychlorinated biphenyl) transformers, extreme care should be given to selecting the right company and to follow up with periodic inspections to ensure proper handling.

The clean-up costs for PCB contamination can be extremely high. In one case, a 2-gal spill cost $25,000 to clean up, and it was not in a waterway where costs can be even higher.

John J. Dougherty, manager of Environmental Compliance for Hevi-Duty Electric, offers these suggestions for utilities needing PCB-related services.

Transportation. The transporter should be responsible for receiving (or assisting in the preparation of) proper shipping documents, prevent the accidental leakage or spillage of transformer fluids enroute, address any such leaks or spills should they occur, and legally dispose of rain waters which may accumulate in the trailers during transportation.

Ask to see a copy of the Spill Prevention, Control, and Countermeasure Plan (SPCC) as required by regulations. Make sure the company has a sufficient fleet of the proper vehicles and a well-trained manpower source.

Equipment storage. Units should be stored in a manner which will prevent the accidental discharge of oil and PCBs into the environment. Ask to view the SPCC inspection records for the storage facility. If storage is outside, a roof is recommended for protection against the elements.

Testing. Make sure the company verifies the level of PCBs in the equipment before processing. Without verification, units exceeding the facility's permitted levels could be accepted and processed, incurring possible liability from the Toxic Substance Control Act and from employee claims of health risks.

Decommissioning processes. Materi-

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